WHAT IS CLAIMED IS:

1. An *N*-acetyl-L-cysteine cell culture medium (NAC medium) comprising;

a buffered, serum-free solution having a pH value from about 6.8 to about 7.6, said solution containing:

glucose;

a biologically utilizable form of pantothenic acid or choline;

at least one inorganic ion in a biologically utilizable form, wherein said ion is chloride ion, phosphate ion, calcium ion, magnesium ion, potassium ion, sodium ion, or iron ion;

cumene hydroperoxide, wherein said cumene hydroperoxide is present in a concentration of about 5 μM to about 500 μM;

deionized water,

N-acetyl-L-cysteine (NAC);

a mitogen wherein said mitogen stimulates said lymphocytes to grow; and

optionally, at least one of a supplemental nutrient in a biological utilizable form wherein said supplemental nutrient is:

a) an L-amino acid;

b) a vitamin; or

c) at least one of pyruvate, adenine or inositol.

2. The method of claim 1, wherein said L-amino acid is selected from the group consisting of L-arginine, L-cysteine, L-glutamine, glycine, L-histidine, L-isoleucine, L-leucine, L-lysine, L-methionine, L-phenylalanine, L-serine, L-threonine, L-tryptophan, L-tyrosine, and L-valine.

3. The method of claim 1, wherein said vitamin is selected from the group consisting of biotin, folinic acid, nicotinamide, nicotinic acid, riboflavin, thiamin, vitamin B_6, and vitamin B_{12}.

4. The method of claim 1, wherein at least one of said pyruvate, said adenine or said inositol supplements said cell culture medium at concentrations eliciting approximately a maximal growth response.

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